CLAIMS

What is claimed is:

1. A chip socket assembly comprising:

(a) a base having a top, a bottom, and a connector, the base defining a slot for receiving at the top of the base an edge of a chip and for guiding the edge of the chip to the bottom of the base; and

(b) a clip configured to mate with the connector of the base for retaining the chip in the base when mating with the connector of the base.

2. The chip socket assembly of claim 1, wherein the chip is packaged in a surface vertical package (SVP).

3. The chip socket assembly of claim 1, wherein the connector of the base includes a protuberance and wherein the clip includes an opening configured to mate with the protuberance of the base.

4. The chip socket assembly of claim 1, wherein the connector of the base includes a socket and wherein the clip includes a connector configured to mate with the socket of the base.

5. The chip socket assembly of claim 1, wherein the chip includes a support pin extending from the edge of the chip and wherein the support pin is bent.

6. The chip socket assembly of claim 5, wherein the base defines the slot with a guide for guiding the support pin of the chip when the chip is placed in the slot of the base.

7. A system comprising:

(a) a circuit board having a surface and having a bus on the surface; and

(b) a base coupled to the surface of the circuit board over the bus, the base having a top and a bottom, the base defining a slot over the bus for receiving at the top of the base an edge of a chip and for guiding the edge of the chip to the bottom of the base and over the bus.

8. The system of claim 7, wherein the chip is packaged in a surface vertical package (SVP).

9. The system of claim 7, comprising:

(c) an elastomeric connector sheet configured between the edge of the chip and the bus.

10. The system of claim 7, wherein the base has a connector, and wherein the system comprises:

(c) a clip configured to mate with the connector of the base for retaining the chip in the base when mating with the connector of the base.

11. The system of claim 10, wherein the connector of the base includes a protuberance and wherein the clip includes an opening configured to mate with the protuberance of the base.

12. The system of claim 10, wherein the connector of the base includes a socket and wherein the clip includes a connector configured to mate with the socket of the base.

13. The system of claim 7, wherein the chip includes a support pin extending from the edge of the chip and wherein the support pin is bent.

14. The system of claim 13, wherein the base defines the slot with a guide for guiding the support pin of the chip when the chip is placed in the slot of the base.

15. The system of claim 7, wherein the base includes an alignment pin extending from the bottom of the base and wherein the circuit board includes an opening for mating with the alignment pin.

16. A chip file assembly comprising:

(a) a base having a top, a bottom, and a plurality of connectors, the base defining a plurality of slots for receiving at the top of the base edges of a plurality of chips and for guiding the edges of the chips to the bottom of the base; and

(b) a plurality of clips configured to mate with the connectors of the base for retaining the chips in the base when mating with the connectors of the base.

17. The chip file assembly of claim 16, wherein one of the chips is packaged in a surface vertical package (SVP).

18. The chip file assembly of claim 16, wherein one of the connectors of the base includes a protuberance and wherein one of the clips includes an opening configured to mate with the protuberance of the base.

19. The chip file assembly of claim 16, wherein one of the connectors of the base includes a socket and wherein one of the clips includes a connector configured to mate with the socket of the base.

20. The chip file assembly of claim 16, wherein one of the chips includes a support pin extending from the edge of the one chip and wherein the support pin is bent.

21. A system comprising:

(a) a circuit board having a surface and having at least one bus on the surface; and

(b) a base coupled to the surface of the circuit board over the at least one bus, the base having a top and a bottom, the base defining a plurality of slots over

the at least one bus for receiving at the top of the base edges of a plurality of chips and for guiding the edges of the chips to the bottom of the base and over the at least one bus.

22. The system of claim 21, wherein one of the chips is packaged in a surface vertical package (SVP).

23. The system of claim 21, comprising:

(c) an elastomeric connector sheet configured between the edge of one of the chips and one of the at least one bus.

24. The system of claim 21, wherein the base has a plurality of connectors, and wherein the system comprises:

(c) a plurality of clips configured to mate with the connectors of the base for retaining the chips in the base when mating with the connectors of the base.

25. The system of claim 24, wherein one of the connectors of the base includes a protuberance and wherein one of the clips includes an opening configured to mate with the protuberance of the base.

26. The system of claim 24, wherein one of the connectors of the base includes a socket and wherein one of the clips includes a connector configured to mate with the socket of the base.

27. The system of claim 21, wherein one of the chips includes a support pin extending from the edge of the one chip and wherein the support pin is bent.

28. The system of claim 21, wherein the base includes an alignment pin extending from the bottom of the base and wherein the circuit board includes an opening for mating with the alignment pin.

29. A chip socket assembly comprising:

a base having a top and a bottom, the base defining a slot for receiving at the top of the base an edge of a chip and for guiding the edge of the chip to the bottom of the base;

the base having a clip portion configured to mate with the chip for retaining the chip in the base when the chip is placed in the slot of the base.

30. The chip socket assembly of claim 29, wherein the chip is packaged in a surface vertical package (SVP).

31. The chip socket assembly of claim 29, wherein the clip portion of the base includes a socket and wherein the chip includes a connector configured to mate with the socket of the clip portion.

32. The chip socket assembly of claim 29, wherein the chip includes a support pin extending from the edge of the chip and wherein the support pin is bent.

33. The chip socket assembly of claim 33, wherein the base defines the slot with a guide for guiding the support pin of the chip when the chip is placed in the slot of the base.

34. An assembly comprising:

(a) a vertical chip package that includes a first clip at a first side of the chip package and a second clip at a second side of the chip package;

(b) a base coupled to a circuit board having a first conductive region, wherein the base secures the vertical chip package by having a first side of the base engage the first clip of the vertical chip package and by having a second side of the base engage the second clip of the vertical chip package wherein a bottom lead of the vertical chip package is electrically coupled to the first conductive region of the circuit board when the base secures the vertical chip package.

35. The assembly of claim 34, wherein the first and second clips of the vertical chip package are flexible and wherein the first and second sides of the base are substantially rigid.

36. The assembly of claim 34, wherein the first and second clips of the vertical chip package and substantially rigid and wherein the first and second sides of the base are flexible.

37. The assembly of claim 34, further comprising an elastomeric connector sheet physically residing between the bottom lead of the vertical chip package and the first conductive region of the circuit board, wherein the elastomeric connector sheet permits electrical coupling between the bottom lead of the vertical chip package and the first conductive region of the circuit board.

38. The assembly of claim 36, further comprising an electrical signal line that is attached to the vertical chip package and not connected to the first conductive region of the circuit board.

39. The assembly of claim 38, wherein the electrical signal line is attached to a top of the vertical chip package.

40. A chip package comprising:

(a) packaging material that contains an integrated circuit, wherein the packaging material has a bottom-facing housing that extends laterally from the packaging material;

(b) a lead extends from a bottom of the packaging material, wherein the lead has a substantially C-shaped form, wherein an end of the lead resides within the housing when the lead is compressed.

41. The chip package of claim 40, wherein the lead is comprised of a flexible metallic material that supplies spring force when the lead is compressed.

42. The chip package of claim 41, wherein the metallic material is beryllium-copper.

43. The chip package of claim 40, wherein the packaging material is a flexible material that permits the lead to be flexed and that causes the lead to exhibit spring force when the lead is compressed.

44. The chip package of claim 43, wherein the flexible material is silicon rubber.

45. The chip package of claim 40, further comprising

(a) a flexible insert residing between the C-shaped lead and the bottom of the packaging material, wherein the flexible insert supplies spring force when the lead is compressed.

46. The chip package of claim 45, wherein the flexible insert is comprised of an elastomer.

47. An assembly comprising:

(a) a chip package comprising:

(i) packaging material that contains an integrated circuit, wherein the packaging material has a bottom-facing housing that extends laterally from the packaging material;

(ii) a lead extending from a bottom of the packaging material, wherein the lead has a substantially C-shaped form, wherein an end of the lead resides within the housing when the lead is compressed;

(b) a base for receiving the chip package;

(c) a mechanism for securing the chip package in the base such that the lead of chip package is compressed when the chip package is secured in the base.

48. The assembly of claim 47, wherein the mechanism is a clip.

49. An assembly comprising:

(a) a first circuit board having a wrap-around connector at a bottom end of the first circuit board;

(b) a base coupled to a second circuit board, wherein the base receives the first circuit board;

(c) an elastomeric connector sheet coupled between (i) the wrap-around connector of the first circuit board and (ii) a conductive material on the second circuit board;

(d) a mechanism for securing the first circuit board in the base.

50. The assembly of claim 49, wherein the wrap-around connector comprises a metal lead cut from a metal strip.

51. An assembly comprising:

(a) a vertical chip package that includes cam follower;

(b) a base coupled to a circuit board having a first conductive region, wherein the base has a slot for receiving the cam follower and for securing the vertical chip package, wherein the slot guides the cam follower in both a downward and a lateral direction, wherein a bottom lead of the vertical chip package is electrically coupled to the first conductive region of the circuit board when the base secures the vertical chip package.

52. The assembly of claim 51, further comprising an elastomeric connector sheet for electrically coupling the bottom lead of the vertical chip package and the first conductive region of the circuit board, wherein a bottom of the elastomeric connector sheet physically contacts the first conductive region of the circuit board, wherein a top of the elastomeric connector sheet physically contacts the bottom lead

of the vertical chip package, wherein when the slot guides the cam follower in the lateral direction, the bottom lead wipes the top of the elastomeric connector sheet.

53. The assembly of claim 51, wherein the bottom lead of the vertical chip package physically contacts the first conductive region of the circuit board, wherein when the slot guides the cam follower in the lateral direction, the bottom lead wipes the first conductive surface of the circuit board.

54. The assembly of claim 51, further comprising a sliding member in a slidable engagement with respect to the base, wherein the sliding member includes a slot for receiving an engagement of the vertical chip package, wherein sliding the slidable member in a lateral direction moves the cam follower of the vertical chip follower in the lateral direction.

55. An assembly comprising:

(a) a horizontal chip package that includes a member on a side of the horizontal chip package;

(b) a socket for receiving the horizontal chip package, wherein the socket is coupled to a circuit board having a first conductive region, wherein the socket includes a guiding surface for guiding the member of horizontal chip package in an angled downward direction;

(c) a frame configured to mate with the socket to secure the horizontal chip package in the socket, wherein a lead of the horizontal chip package is electrically coupled to the first conductive region of the circuit board when the frame secures the horizontal chip package in the socket.

56. The assembly of claim 55, further comprising an elastomeric connector sheet for electrically coupling the lead of the horizontal chip package and the first conductive region of the circuit board, wherein a bottom of the elastomeric

connector sheet physically contacts the first conductive region of the circuit board, wherein a top of the elastomeric connector sheet physically contacts the lead of the horizontal chip package, wherein when the guiding surface of the socket guides the member of the horizontal chip packages in the angled downward direction, the lead wipes the top of the elastomeric connector sheet.

57. The assembly of claim 55, wherein the socket is movable with respect to the circuit board and wherein the frame is rigidly secured to the circuit board.

58. The assembly of claim 55, wherein the lead of the horizontal chip package physically contacts the first conductive region of the circuit board, wherein when the guiding surface of the socket guides the member of the horizontal chip package in the angled downward direction, the lead wipes the top of the elastomeric connector sheet.

59. A mechanism for securing a horizontal chip package, wherein the mechanism comprises:

(a) a hinged clamp;

(b) a lever coupled to the hinged clamp;

(c) a latch for engaging the lever, wherein when the lever is engaged in the latch, the hinged clamp applies a downward force on a first lead of the horizontal chip package.

60. The mechanism of claim 59, further comprising a frame for receiving the horizontal chip package, wherein the hinged clamp is coupled to a first side of the frame, wherein the latch resides on a second side of the frame.

61. The mechanism of claim 60, further comprising a corner alignment portion on an inward portion of the second side of the frame, wherein the corner

alignment portion receives a second lead of the horizontal chip package in order to align the horizontal chip package.

62. An assembly comprising:

(a) a horizontal chip package with a first lead;

(b) a frame for receiving the horizontal chip package, wherein the frame is coupled to a circuit board having a first conductive region;

(c) an elastomeric connector sheet residing within the frame, above the first conductive region, and below the first lead of the horizontal chip package;

(d) a hinged clamp coupled to a first side of the frame;

(e) a lever coupled to the hinged clamp;

(f) a latch for engaging the lever, wherein the latch resides on a second side of the frame, wherein when the lever is engaged in the latch, the hinged clamp applies a downward force on the horizontal chip package, thereby securing the horizontal chip package.

63. The assembly of claim 62, further comprising a corner alignment portion on an inward portion of the second side of the frame, wherein the corner alignment portion receives a second lead of the horizontal chip package in order to align the horizontal chip package.

64. A clip for securing a horizontal chip package into a socket, wherein the clip comprises a beam with a downward extending member, wherein a top of the beam engages a tab on the socket, wherein a lower portion of a first end of the beam engages a top of the horizontal chip package, and wherein a bottom of the downward extending member of the beam presses downward on a lead of the horizontal chip package and secures the horizontal chip package in the socket.

65. The clip of claim 64, wherein an elastomeric connector sheet resides under the lead of the horizontal chip package and resides above a conductive region of a circuit board, wherein when the bottom of the downward extending member of the beam presses downward on the lead of the horizontal chip package, the lead of the horizontal chip package is electrically coupled to the conductive region of the circuit board.

66. A horizontal chip package comprising:

(a) a lead;

(b) a plastic body;

(c) an integrated circuit residing within the plastic body;

(d) a heatsink, wherein the heatsink secures the horizontal chip package into a socket, wherein the heatsink comprises a beam with a downward extending member, wherein a top of the beam engages a tab on the socket, wherein a first end of the beam is coupled to the plastic body, and wherein a bottom of the downward extending member of the beam presses downward on the lead of the horizontal chip package and secures the horizontal chip package in the socket.

67. An assembly comprising:

(a) a horizontal chip package;

(b) a base coupled to a circuit board having a first conductive region, wherein a first side of the base has a tab that juts into an interior of the base;

(c) a beam that secures the horizontal chip package in the base when (I) a top of the beam engages an underside of the tab of the base and (ii) a bottom of the beam engaged a top of the chip package.